



THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
OF THE
TOWN OF TECUMSEH
COUNTY OF ESSEX

1964

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R E P O R T

on

WATER POLLUTION SURVEY

of the

TOWN OF TECUMSEH

COUNTY OF ESSEX

October 1964

Division of Sanitary Engineering

R E P O R T

ONTARIO WATER RESOURCES COMMISSION

A water pollution survey of surface-water drains and storm sewers in the Town of Tecumseh was conducted on October 5, 1964.

Mr. W. V. Bouteiller, Clerk-Treasurer, gave information pertinent to the survey, and Mr. J. P. Labute, Superintendent of Works, assisted in the sampling programme.

GENERAL

The Town of Tecumseh, with an assessed population of 4,458 (1964 Municipal Directory) is located on the south side of Lake St. Clair, approximately eight miles east and upstream from the City of Windsor. The town is mainly residential with one major industry, the Green Giant of Canada Ltd., food processing plant.

General drainage direction from the area is toward the north with discharge into Lake St. Clair. The area is quite flat and generally difficult to drain. Pumping units are required to discharge the flow from the main municipal drains and storm sewers into the lake.

Individual septic tank systems with field-tile disposal areas are presently employed for treatment and disposal of domestic wastes. Due to the adverse absorption quality of soil, and a high water table in some sections of the town, field-tile disposal units

do not function satisfactorily. These conditions have resulted in sanitary wastes being discharged into storm sewers and surface-water drains. It is also known that many properties, especially in the business areas and older residential sections, do not have space available for the installation of adequate field-tile disposal units. Consequently, direct connections from individual systems to surface-water drains and storm sewers have been permitted. This illegal practice has resulted in the gross pollution of drains within the municipality. The polluted flow from these drains is in turn discharged into Lake St.Clair, and is therefore considered to be a source of pollution to that body of water.

Treatment for waste from the Green Giant of Canada Ltd. food processing operation is provided by the use of a spray irrigation disposal system. The volume of waste to be treated during the peak operational period of three to four months per year, is estimated at 400 to 500 gallons per minute or 384,000 to 480,000 gallons per 16-hour shift, and 576,000 to 720,000 gallons per 24-hour shift. The spray area consists of approximately 100 acres.

Routine inspections of the spray system were made on July 8, August 27 and September 3, 1964. No runoff to any surface-water drain was noted at the time of these inspections. It was reported however, that some runoff had occurred during the latter part of September, and that the Manning Road drain had become

badly polluted. Evidence of this condition was noted at the time of this survey. It was also reported that some processing waste from the Green Giant plant had been discharged directly into a municipal surface-water drain. This report could not be confirmed as the plant had completed operations for the year, approximately a week prior to this survey.

WATER QUALITY ANALYSES

As a measure in assessing the presence and degree of pollution, water samples were collected, where possible, from the flow near the outfall of each of the municipal surface-water drains, and also from the receiving water area of Lake St. Clair.

The sanitary chemical and bacteriological analyses results of these samples are listed in Tables 1 and 2 respectively.

The locations of the sampling points are designated on the accompanying map by watercourse mileage distances.

INTERPRETATION OF ANALYSES

For convenience in the interpretation of laboratory analyses, the Ontario Water Resources Commission water quality objectives for surface-water drains and watercourses are listed:

Surface-Water Drains

5-day BOD (Biochemical Oxygen Demand)

- not greater than 15 parts per million (ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliform Count (Membrane Filter)

- not greater than 2400 per 100 millilitres (ml)

Anionic Detergent

The presence of anionic detergent in water samples indicates pollution from domestic sources.

Watercourses

5-day BOD (Biochemical Oxygen Demand)

- not greater than 4 parts per million (ppm)

Coliform Count (Membrane Filter)

- not greater than 2400 per 100 millilitres (ml)

SIGNIFICANCE OF LABORATORY ANALYSES

It is noted that the sanitary chemical and bacteriological analyses of all samples collected from the surface-water drains show results greatly in excess of the water quality objectives. It is therefore indicated that a condition of gross pollution exists in the drains throughout the town. The presence of anionic detergent and the excessively high coliform counts indicate that sanitary sewage and other domestic wastes are the probable sources of pollution.

The laboratory analyses of water samples collected from Lake St.Clair indicate an increase in the level of pollution in the water area adjacent to the Town of Tecumseh. This condition is

especially emphasized in the area downstream from the L'Esperance Road drain outfall.

CONCLUSIONS

The surface-water drains throughout the Town of Tecumseh are grossly polluted. This condition may be attributed to the illegal practice of permitting the discharge of inadequately treated wastes and domestic sewage into the surface-water drains and storm sewers. The discharge from these drains in turn is therefore considered to be a major source of pollution of Lake St. Clair.

The level of pollution in the Manning Road drain may have been increased by runoff from the Green Giant waste treatment system. The evidence of pollution as indicated in drains other than the Manning Road drain is considered to be mainly from domestic sources.

SUMMARY

A water pollution survey was conducted in the Town of Tecumseh on October 5, 1964.

--All surface-water drains investigated were grossly polluted. The extremely high BOD, anionic detergent, and coliform counts indicate inadequately treated sanitary sewage and other domestic wastes to be the major sources of such pollution.

A condition of pollution exists in the water area of Lake St. Clair adjacent to Tecumseh. This pollution is attributed to the discharge of polluting materials from the municipal surface-water drains.

RECOMMENDATIONS

1. The Town of Tecumseh should institute a sewerage works programme, and proceed with the installation of sanitary sewers and the construction of an adequate system for sewage treatment.

2. In the event that the institution of such a project is not feasible, it will then be necessary that the municipality take immediate measures to ensure that all private drains, which discharge inadequately treated wastes to any surface-water drain or water body, are located and severed. This action will therefore require each property owner to provide a means of adequate treatment for his own wastes.

All of which is respectfully submitted,

District Engineer: C. E. McIntyre
C. E. McIntyre

Approved by: K. H. Sharpe
K. H. Sharpe, Director.

T A B L E 1

TOWN OF TECUMSEH - WATER POLLUTION SURVEY

<u>Surface-Water Drains</u>							
<u>Mileage</u> <u>Designation</u>	<u>Location of</u> <u>Sampling Point</u>	<u>5-Day</u> <u>BOD</u> <u>(ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic</u> <u>Detergent</u> <u>as A B S</u> <u>(ppm)</u>	<u>Coliform</u> <u>Count</u> <u>per 100 ml</u> <u>Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
L.St.C.68.26D	Parent drain at outfall to Lake St.Clair	5.6	530	5	525	1.0	180,000
L.St.C.68.10W	L'Esperance Road drain at outfall to Lake St.Clair	200.0	620	80	540	7.5	11,000,000
L.St.C.67.93W	Victoria St. drain at outfall to Lake St.Clair	11.0	528	6	522	2.5	6,300,000
L.St.C.67.76D	Outfall to Lake St.Clair west of Barry Ave.		NO FLOW				
L.St.C.67.61D	Riberty drain near outfall to Lake St.Clair	8.2	622	79	543	2.0	13,000
L.St.C.67.52D	Outfall to Lake St.Clair east of Riberty drain		NO FLOW				

T A B L E 1 (Cont'd)

TOWN OF TECUMSEH - WATER POLLUTION SURVEY

Surface-Water Drains

<u>Mileage Designation</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic Detergent as A B S (ppm)</u>	<u>Coliform Count per 100 ml Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
L.St.C.67.35D	Outfall to Lake St.Clair west of Grace Rd.	720.0	1920	1494	426	18.8	210,000,000
L.St.C.67.28W	Manning Road drain at outfall to Lake St.Clair	920.0	1694	80	1614	2.6	1,300,000
 <u>Sampling Point Number</u>							
1	St.Thomas drain before junction with the Manning Road drain	3.2	582	47	535	1.6	600,900

T A B L E 2

TOWN OF TECUMSEH - WATER POLLUTION SURVEY

Lake St. Clair (Receiving Water)

<u>Mileage Designation</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic Detergent as A B S (ppm)</u>	<u>Coliform Count per 100 ml Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
L.St.C.67.24	Near St.Clair Beach and Tecumseh boundary -	2.5	242	53	189	0.1	320
L.St.C.68.14	Near Riverside and Tecumseh boundary	13.0	422	174	248	1.0	400,000

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